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FOREST RESEARCH REPORT

No. 35 February 1992

YIELDS OF SELECTED OLDER FOREST PLANTATIONS IN NOVA SCOTIA

INTRODUCTION

Tree planting for reforestation was limited in Nova Scotia until the Provincial Forest Nursery was established at Lawrencetown, Annapolis County in 1926. Trees from this nursery were supplied free of charge to Boy Scouts, schools, and private individuals interested in tree planting. In the mid-1930's, Otto Schierbeck, a Danish forester employed by the Department of Lands and Forests, initiated the establishment of small plantations throughout Nova Scotia to serve as demonstrations, and to test the suitability of a number of exotic species (Creighton, 1988). At the time of the 2nd World War, only a few individuals were establishing plantations in Nova Scotia. Of these, the most notable was the late Gordon MacKay of Pictou County. MacKay planted old field sites with native and exotic conifer species, the latter based on knowledge gained while travelling throughout Europe. These early plantings have provided valuable information about potential yields of forestry plantations.

During the 40's, 50's and 60's, plantations were being established sporadicaly throughout the Province with most of the emphasis placed on fire barrens, abandoned fields, and windbreaks.

It was not until 1964 that annual nursery production in the Province exceeded 1 million trees (Figure 1). Tree planting rapidly escalated thereafter and by 1984, the 100 millionth tree had been planted. This total included tree seedlings produced at the forest nurseries operated by the Province (Lawrencetown, Wittenburg, Strathlorne) and private nurseries operated by forest industry. In 1990, our forest nurseries produced approximately 25 million container seedlings.

Red pine was the preferred species to plant up until about 1970. Spruce has now become the dominant reforestation species in the Province. Norway spruce, in particular, is gaining popularity over native white, red, and black spruce due to its exceptional growth on a variety of sites (NSDLF, 1990).

Nova Scotia softwood plantations are projected to yield 179 m^3/ha (32 cords/acre) in 40 years, assuming a seedling survival of 70%

Canada

Nova Scotia

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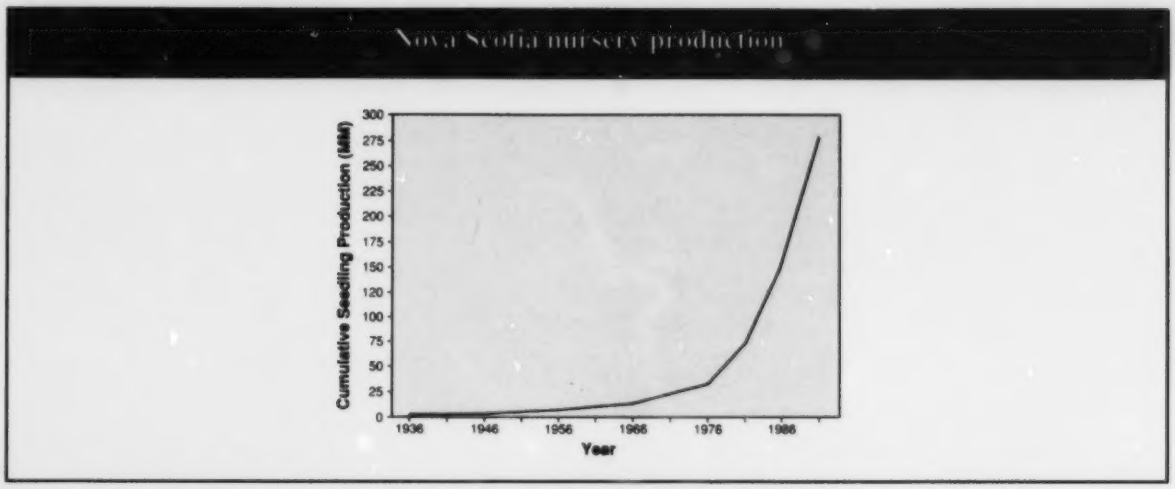

Figure 1. Nova Scotia cumulative seedling production from government and industrial tree nurseries in millions (MM).

on average sites. This compares with present average yields from mature unmanaged forests of 88 m^3/ha (16 cords/acre) at age 60 (Bailey, 1991). If sawlogs are desired, and one commercial thinning is carried out at age 30, plantations can be expected to yield 357 m^3/ha (64 cords/acre, including the volume harvested during the thinning) or 4 times the yield of average natural unmanaged softwood stands at 60 years.

The purpose of this report is to document the growth of some of the oldest plantations in the Province. These data are meant as an illustration of the yields realizable from forest plantations.

METHODS

Twenty of the oldest well stocked plantations of different species were selected from the records of the Nova Scotia Department of Natural Resources. A circular sample plot was located in a well stocked portion of each plantation surrounded by a buffer zone of similar stocking and equal in width to the average tree height. Each plot (excluding plantation #20) contained a minimum of 35 trees. All trees exceeding 1 cm diameter at breast height (1.35 m) were measured. Fifteen trees, representing the range of diameters, but weighted towards the larger diameters, were selected and measured for height. An estimate of the capability was determined by measuring breast height age and height of the 5 tallest trees. Site evaluation included a description of the lesser vegetation, soil texture, moisture, depth, parent material, rock type, relief, topography, slope, and aspect. Definitions for stand attributes used in this report are found in Appendix I.

DISCUSSION

Many of the plantations measured in this study, were established on old fields and received little in the way of site preparation or follow-up treatments, such as weeding and thinning. The failure to carry out these treatments is reflected in lower yields, more time to reach breast height, slow diameter growth, and losses to mortality. In many of the older plantations, suppression and overcrowding has reduced merchantable volume. Had a commercial thinning been done in these stands to salvage volume lost to mortality and suppression before they occurred, the yield could have been increased by roughly 25% (Nova Scotia Variable Density Growth and Yield Model, N.S. Dept. of Natural Resources, unpublished). Despite these facts, all of the 8 plantations exceeding 40 years of age (stump height) are yielding more than the

projected 32 cords/acre (Bailey,1991). Of the 12 remaining stands under 40 years of age, 7 also exceed this yield (Table 1). It should be noted that many of these plantations have not yet reached peak mean annual increment.

Table 1 summarizes the 20 surveyed plantations. By species, 7 are red pine, 6 Norway spruce, 3 red spruce, 2 white spruce, 1 white pine and 1 hybrid larch. They range in age at stump height from 16-58 years: merchantable volume from 132 - 598 m^3/ha (24-107 cords/acre): and total diameter from 12.4-23.4 cm. The detailed data as well as a photograph of each plantation are included in Appendix II. Although the yields reported here are actual, those from other plantations could vary, depending on factors such as species, site, competition, and survival.

Table 1 Selected growth parameters for 20 older forest plantations in Nova Scotia

Plantation	Age (years)		Diameter (cm)		Merch. Volume	
	Stump	Breast	Total	Merch.	m^3/ha	cords/ac
Norway Spruce						
#1 Centredale, Pictou Co.	47	42	21.1	22.1	598	107
#2 Lorne, Pictou Co.	58	50	22.9	22.9	540	96
#3 Lawrencetown, Annapolis Co.	45	38	18.8	19.3	360	64
#4 Dryden lake, Pictou Co.	34	26	17.8	17.8	369	66
#5 Chignecto, Cumberland Co.	46	32	15.7	15.8	220	39
#6 Blue Mountain, Pictou Co.	35	31	19.8	20.1	319	57
Red Pine						
#7 Centredale, Pictou Co.	47	43	18.0	18.0	398	71
#8 Garden of Eden, Guysborough Co.	26	22	21.3	21.3	203	36
#9 Glengarry Station, Pictou Co.	52	48	19.3	19.3	560	100
#10 Dryden Lake, Pictou Co.	35	28	17.3	17.3	327	58
#11 Garden of Eden, Guysborough Co.	30	24	14.2	14.7	237	42
#12 Chignecto,Cumberland Co.	49	39	21.3	21.6	302	54
#13 Chignecto, Cumberland Co.	31	25	15.7	16.0	250	45
Red Spruce						
#14 Lochaber Mines, Halifax Co.	31	20	14.2	15.2	157	28
#15 Debert, Colchester Co.	32	26	14.2	15.5	263	47
#16 Lansdowne, Pictou Co.	24	18	13.2	13.7	137	24
White Pine						
#17 Lorne, Pictou Co.	56	52	23.4	23.4	508	91
White Spruce						
#18 Dryden Lake, Pictou Co.	34	27	15.2	16.0	142	25
#19 Lansdowne, Pictou Co.	24	18	12.4	13.7	148	26
Hybrid Larch						
#20 Abercrombie, Pictou Co.	16	14	19.6	19.6	132	24

LITERATURE CITED

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APPENDIX I

Glossary

1) *Total Height* = the average height in metres of all trees weighted by basal area.

2) *Stump Age* = the average age of the 5 tallest trees measured at a height of 0.3 m above the ground surface.

3) *Breast Height Age* = the average age of the 5 tallest trees measured at 1.35 m above the ground surface.

4) *Site Index (50)* = the projected average top height of the 5 tallest trees at a breast height age of 50.

5) *Total Frequency (TF)* = the number of trees per hectare ≥1.5 cm outside bark diameter at breast height (Dbhob).

6) *Merchantable Frequency (MF)* = the number of trees per hectare ≥ 9.1 cm(Dbhob).

7) *Total Basal Area (TBA)* = the cross-sectional area, measured at 1.35 m above ground level of all trees 1.5 cm Dbhob and greater, expressed in m^2/ha.

8) *Merchantable Basal Area (MBA)* = the cross-sectional area, measured at 1.35 m above ground level, of all trees 9.1 cm (Dbhob) and greater, expressed in m^2/ha.

9) *Total Diameter* = $\frac{\text{TBA}}{\text{TF}} \times .00007854$

10) *Merchantable Diameter* = $\frac{\text{MBA}}{\text{MF}} \times .00007854$

11) *Total Volume* = the volume inside bark of all tree boles, including the stump and top, ≥ 1.5 cm (Dbhob) based on volume equations derived by Honer(1967), expressed in solid m^3/ha.

12) *Merchantable Volume* = the volume inside bark of all tree boles ≥9.1 cm (Dbhob) based on Honer's volume equations expressed in solid m^3/ha. The merchantable bole excludes the stump (15 cm) and the top (7.6 cm inside bark diameter).

13) *Total Mean Annual Increment* = the total volume divided by the stump age and expressed as solid m^3/ha/yr.

14) *Merchantable Mean Annual Increment* = the merchantable volume divided by the stump age and expressed as solid m^3/ha/yr.

15) *Capability* = productivity expressed in terms of solid m^3/ha/yr at a rotation age defined as peak mean annual increment in merchantable volume.

APPENDIX II
Detailed Data and Photographs

#1 Norway Spruce – Centredale, Pictou County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2080	1880
Diameter (cm)	21.1	22.1
Basal Area (m^2/ha)	72.1	71.3
Total Height (m)	22	22.1
Volume (m^3/ha)	650	598
Volume (cords/acre)	–	107
Mean Annual Increment (m^3/ha/yr)	13.8	12.7

Site Description

Soil Series	-	Kirkhill
Soil Texture	-	Sandy Loam
Soil Moisture	-	Well Drained
Site History	-	Old Field
Capability	-	13.2 m^3/ha/yr
Site Index	-	28 m @ 50 yrs (BHA)

Plantation Description

Ownership	-	Private
Year Established	-	1938
Initial Spacing	-	1.2 m x 1.5 m
Site Preparation	-	Nil
Area	-	1.0 ha
Stump Age	-	47
Breast Height Age	-	42
Year of Measurement	-	1984

#2 Norway Spruce – Lorne, Pictou County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1440	1440
Diameter (cm)	22.9	22.9
Basal Area (m^2/ha)	59.5	59.5
Total Height (m)	24.4	24.4
Volume (m^3/ha)	580	540
Volume (cords/acre)	–	96
Mean Annual Increment (m^3/ha/yr)	10	9.3

Site Description

Soil Series - Hebert
Soil Texture - Sandy Loam
Soil Moisture - Well Drained
Site History - Old Field
Capability - 11.4 m^3/ha/yr
Site Index - 26 m @ 50 yrs (BHA)

Plantation Description

Ownership - Private
Year Established - 1934
Initial Spacing - 1.5 m x 1.8 m
Site Preparation - Nil
Area - 0.1 ha
Stump Age - 58
Breast Height Age - 50
Year of Measurement - 1991

#3 Norway Spruce – Lawrencetown, Annapolis County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1640	1559
Diameter (cm)	18.8	19.3
Basal Area (m^2/ha)	46.1	45.6
Total Height (m)	19.7	19.8
Volume (m^3/ha)	381	360
Volume (cords/acre)	–	64
Mean Annual Increment (m^3/ha/yr)	8.5	8

Site Description

Soil Series	- Fash
Soil Texture	- Sandy Clay Loam
Soil Moisture	- Well Drained
Site History	- Old Field
Capability	- 11.0 m^3/ha/yr
Site Index	- 26 m @ 50 yrs (BHA)

Plantation Description

Ownership	- Private
Year Established	- 1946
Initial Spacing	- 1.2 m x 2.1m
Site Preparation	- Nil
Area	- 0.8 ha
Stump Age	- 45
Breast Height Age	- 38
Year of Measurement	- 1990

#4 Norway Spruce - Dryden Lake, Pictou County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2398	2398
Diameter (cm)	17.8	17.8
Basal Area (m^2/ha)	59.9	59.9
Total Height (m)	15.5	15.5
Volume (m^3/ha)	409	369
Volume (cords/acre)	–	66
Mean Annual Increment (m^3/ha/yr)	12	10.9

Site Description			*Plantation Description*		
Soil Series	-	Hebert	Ownership	-	Private
Soil Texture	-	Sandy Loam	Year Established	-	1958
Soil Moisture	-	Well Drained	Initial Spacing	-	1.5 m x 1.8 m
Site History	-	Old Field	Site Preparation	-	Farm Plow
Capability	-	13.2 m^3/ha/yr	Area	-	1.5 ha
Site Index	-	28 m @ 50 yrs (BHA)	Stump Age	-	34
Year of Measurement	-	1991	Breast Height Age	-	26

#5 Norway Spruce – Chignecto, Cumberland County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2349	2149
Diameter (cm)	15.7	15.8
Basal Area (m^2/ha)	45.5	44.7
Total Height (m)	12.1	12.2
Volume (m^3/ha)	252	220
Volume (cords/acre)	–	39
Mean Annual Increment (m^3/ha/yr)	5.5	4.8

Site Description			*Plantation Description*		
Soil Series	-	Hebert	Ownership	-	Crown
Soil Texture	-	Sandy Loam	Year Established	-	1944
Soil Moisture	-	Well Drained	Initial Spacing	-	1.8 m x 1.8 m
Site History	-	Fire Barren	Site Preparation	-	Nil
Capability	-	8.1 m^3/ha/yr	Area	-	0.7 ha
Site Index	-	21 m @ 50 yrs (BHA)	Stump Age	-	46
Year of Measurement	-	1989	Breast Height Age	-	32

#6 Norway Spruce – Blue Mountain, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1640	1600
Diameter (cm)	19.8	20.1
Basal Area (m^2/ha)	51.2	51
Total Height (m)	15.4	15.4
Volume (m^3/ha)	348	319
Volume (cords/acre)	–	57
Mean Annual Increment (m^3/ha/yr)	9.9	9.1

Site Description			*Plantation Description*		
Soil Series	-	Kirkmount	Ownership	-	Crown
Soil Texture	-	Sandy Loam	Year Established	-	1954
Soil Moisture	-	Well Drained	Initial Spacing	-	2.4 m x 2.7 m
Site History	-	Old Field	Site Preparation	-	Farm Plow
Capability	-	10.0 m^3/ha/yr	Area	-	0.5 ha
Site Index	-	24 m @ 50 yrs (BHA)	Stump Age	-	35
Year of Measurement	-	1988	Breast Height Age	-	31

#7 Red Pine - Centredale, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1998	1998
Diameter (cm)	18	18
Basal Area (m^2/ha)	50.6	50.6
Total Height (m)	19	19
Volume (m^3/ha)	441	398
Volume (cords/acre)	–	71
Mean Annual Increment (m^3/ha/yr)	9.4	8.5

Site Description			*Plantation Description*		
Soil Series	-	Kirkhill	Ownership	-	Private
Soil Texture	-	Sandy Loam	Year Established	-	1938
Soil Moisture	-	Well Drained	Initial Spacing	-	1.2 m x 1.5 m
Site History	-	Old Field	Site Preparation	-	Farm Plow
Capability	-	9.4 m^3/ha/yr	Area	-	1.0 ha
Site Index	-	23 m @ 50 yrs (BHA)	Stump Age	-	47
Year of Measurement	-	1984	Breast Height Age	-	43

58 Red Pine – Garden of Eden, Guysborough County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1079	1079
Diameter (cm)	21.3	21.3
Basal Area (m^2/ha)	38.6	38.6
Total Height (m)	11.9	11.9
Volume (m^3/ha)	220	203
Volume (cords/acre)	–	36
Mean Annual Increment (m^3/ha/yr)	8.5	7.8

Site Description

Soil Series - Halifax
Soil Texture - Sandy Loam
Soil Moisture - Well Drained
Site History - Fire Barren
Capability - 9.6 m^3/ha/yr
Site Index - 23 m @ 50 yrs (BHA)

Plantation Description

Ownership - Crown
Year Established - 1963
Initial Spacing - 2.7 m x 2.7 m
Site Preparation - Nil
Area - 25.5 ha
Stump Age - 26
Breast Height Age - 22
Year of Measurement - 1988

#9 Red Pine - Glengarry Station, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2100	2100
Diameter (cm)	19.3	19.3
Basal Area (m^2/ha)	60.7	60.7
Total Height (m)	22.5	22.5
Volume (m^3/ha)	614	560
Volume (cords/acre)	–	100
Mean Annual Increment (m^3/ha/yr)	11.8	10.8

Site Description

Soil Series - Hebert
Soil Texture - Sandy Loam
Soil Moisture - Well Drained
Site History - Old Field
Capability - 10.4 m^3/ha/yr
Site Index - 24 m @ 50 yrs (BHA)

Plantation Description

Ownership - Private
Year Established - 1940
Initial Spacing - 1.5 m x 1.8 m
Site Preparation - Nil
Area - 1.8 ha
Stump Age - 52
Breast Height Age - 48
Year of Measurement - 1991

#10 Red Pine – Dryden Lake, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2520	2520
Diameter (cm)	17.3	17.3
Basal Area (m^2/ha)	59.1	59.1
Total Height (m)	13	13
Volume (m^3/ha)	366	327
Volume (cords/acre)	–	58
Mean Annual Increment (m^3/ha/yr)	10.5	9.3

Site Description			*Plantation Description*		
Soil Series	-	Hebert	Ownership	-	Private
Soil Texture	-	Sandy Loam	Year Established	-	1957
Soil Moisture	-	Well Drained	Initial Spacing	-	1.5 m x 1.8 m
Site History	-	Old Field	Site Preparation	-	Farm Plow
Capability	-	8.3 m^3/ha/yr	Area	-	1.0 ha
Site Index	-	21 m @ 50 yrs (BHA)	Stump Age	-	35
Year of Measurement	-	1991	Breast Height Age	-	28

#11 Red Pine - Garden of Eden, Guysborough County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	3120	2818
Diameter (cm)	14.2	14.7
Basal Area (m^2/ha)	49.9	48.2
Total Height (m)	12.1	12.1
Volume (m^3/ha)	288	237
Volume (cords/acre)	–	42
Mean Annual Increment (m^3/ha/yr)	9.6	7.9

Site Description			*Plantation Description*		
Soil Series	-	Halifax	Ownership	-	Crown
Soil Texture	-	Sandy Loam	Year Established	-	1960
Soil Moisture	-	Well Drained	Initial Spacing	-	1.8 m x 1.8 m
Site History	-	Fire Barren	Site Preparation	-	Nil
Capability	-	8.8 m^3/ha/yr	Area	-	3.6 ha
Site Index	-	22 m @ 50 yrs (BHA)	Stump Age	-	30
Year of Measurement	-	1989	Breast Height Age	-	24

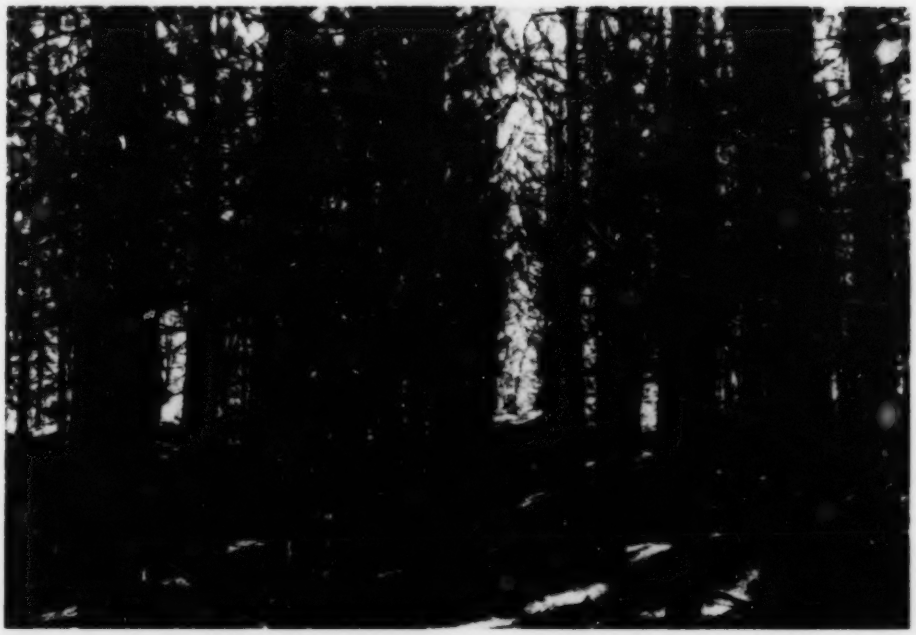
#12 Red Pine - Chignecto, Cumberland County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1240	1220
Diameter (cm)	21.3	21.6
Basal Area (m^2/ha)	44.6	44.6
Total Height (m)	15.6	15.6
Volume (m^3/ha)	326	302
Volume (cords/acre)	–	54
Mean Annual Increment (m^3/ha/yr)	6.7	6.2

Site Description			*Plantation Description*		
Soil Series	-	Hebert	Ownership	-	Crown
Soil Texture	-	Loamy Sand	Year Established	-	1941
Soil Moisture	-	Well Drained	Initial Spacing	-	1.8 m x 3.7 m
Site History	-	Fire Barren	Site Preparation	-	Nil
Capability	-	7.6 m^3/ha/yr	Area	-	0.8 ha
Site Index	-	20 m @ 50 yrs (BHA)	Stump Age	-	49
Year of Measurement	-	1989	Breast Height Age	-	39

#13 Red Pine - Chignecto, Cumberland County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2559	2438
Diameter (cm)	15.7	16.0
Basal Area (m^2/ha)	49.6	49.4
Total Height (m)	12.1	12.1
Volume (m^3/ha)	286	250
Volume (cords/acre)	–	45
Mean Annual Increment (m^3/ha/yr)	9.2	8.1



Site Description			*Plantation Description*		
Soil Series	-	Shulie	Ownership	-	Crown
Soil Texture	-	Sandy Loam	Year Established	-	1959
Soil Moisture	-	Well Drained	Initial Spacing	-	2.4 m x 2.4 m
Site History	-	Fire Barren	Site Preparation	-	Nil
Capability	-	8.4 m^3/ha/yr	Area	-	0.5 ha
Site Index	-	21 m @ 50 yrs (BHA)	Stump Age	-	31
Year of Measurement	-	1989	Breast Height Age	-	25

#14 Red Spruce - Tochaber Mines, Halifax County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2280	1959
Diameter (cm)	14.2	15.2
Basal Area (m^2/ha)	36.4	35.2
Total Height (m)	10	10.1
Volume (m^3/ha)	189	157
Volume (cords/acre)	–	28
Mean Annual Increment (m^3/ha/yr)	6.1	5.1

Site Description			*Plantation Description*		
Soil Series	-	Halifax	Ownership	-	Crown
Soil Texture	-	Sandy Loam	Year Established	-	1959
Soil Moisture	-	Well Drained	Initial Spacing	-	2.4 m x 2.4 m
Site History	-	Old Field	Site Preparation	-	Farm Plow
Capability	-	9.0 m^3/ha/yr	Area	-	2.0 ha
Site Index	-	22 m @ 50 yrs (BHA)	Stump Age	-	31
Year of Measurement	-	1989	Breast Height Age	-	20

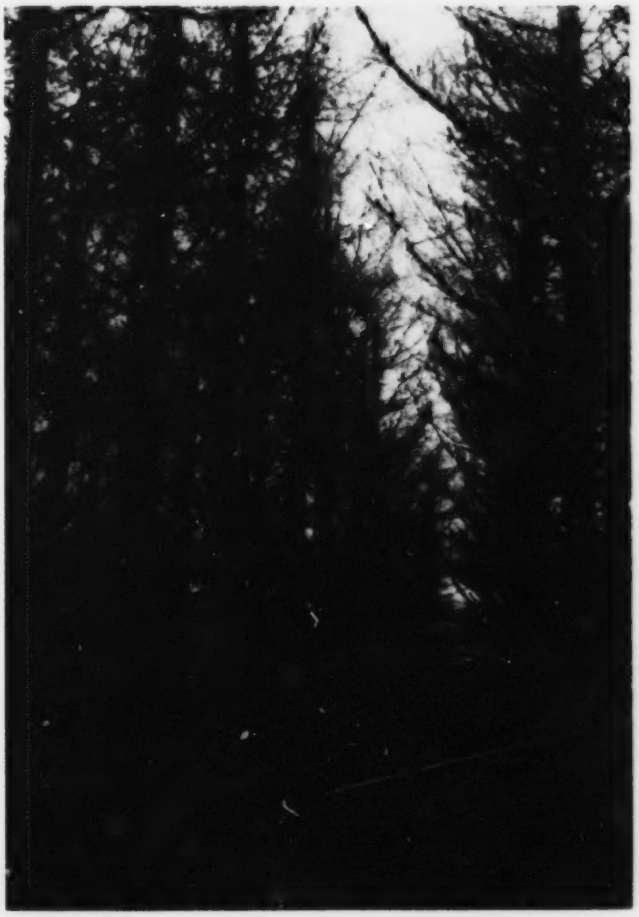
#15 Red Spruce – Debert, Colchester County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	3399	2749
Diameter (cm)	14.2	15.5
Basal Area (m^2/ha)	54.8	52.0
Total Height (m)	11.5	11.6
Volume (m^3/ha)	316	263
Volume (cords/acre)	–	47
Mean Annual Increment (m^3/ha/yr)	9.9	8.2

Site Description			**Plantation Description**		
Soil Series	-	Truro	Ownership	-	Crown
Soil Texture	-	Sandy Loam	Year Established	-	1958
Soil Moisture	-	Well Drained	Initial Spacing	-	1.4 m x 1.4 m
Site History	-	Old Field	Site Preparation	-	Farm Plow
Capability	-	8.5 m^3/ha/yr	Area	-	0.2 ha
Site Index	-	21 m @ 50 yrs (BHA)	Stump Age	-	32
Year of Measurement	-	1989	Breast Height Age	-	26

#16 Red Spruce – Lansdowne, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	2759	2519
Diameter (cm)	13.2	13.7
Basal Area (m^2/ha)	38.4	37.4
Total Height (m)	8.4	8.5
Volume (m^3/ha)	170	137
Volume (cords/acre)	–	24
Mean Annual Increment (m^3/ha/yr)	7.1	5.7



Site Description

Soil Series	- Thom
Soil Texture	- Sandy Loam
Soil Moisture	- Well Drained
Site History	- Old Field
Capability	- 8.5 m^3/ha/yr
Site Index	- 21 m @ 50 yrs (BHA)

Plantation Description

Ownership	- Scott Maritimes
Year Established	- 1966
Initial Spacing	- 1.8 m x 1.8 m
Site Preparation	- Farm Plow
Area	- 1.0 ha
Stump Age	- 24
Breast Height Age	- 18
Year of Measurement	- 1989

#17 White Pine – Lorne, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1279	1279
Diameter (cm)	23.4	23.4
Basal Area (m^2/ha)	54.7	54.7
Total Height (m)	22.5	22.5
Volume (m^3/ha)	545	508
Volume (cords/acre)	–	91
Mean Annual Increment (m^3/ha/yr)	9.7	9.1

Site Description

Soil Series - Hebert
Soil Texture - Sandy Loam
Soil Moisture - Well Drained
Site History - Old Field
Capability - 9.8 m^3/ha/yr
Site Index - 23 m @ 50 yrs (BHA)

Plantation Description

Ownership - Private
Year Established - 1936
Initial Spacing - 1.5 m x 1.7 m
Site Preparation - Nil
Area - 0.4 ha
Stump Age - 56
Breast Height Age - 52
Year of Measurement - 1991

#18 White Spruce – Dryden Lake, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	1739	1499
Diameter (cm)	15.2	16.0
Basal Area (m^2/ha)	31.7	30.5
Total Height (m)	11.2	11.3
Volume (m^3/ha)	167	142
Volume (cords/acre)	–	25
Mean Annual Increment (m^3/ha/yr)	4.9	4.2

Site Description

Soil Series - Hebert
Soil Texture - Sandy Loam
Soil Moisture - Well Drained
Site History - Old Field
Capability - 7.8 m^3/ha/yr
Site Index - 20 m @ 50 yrs (BHA)

Plantation Description

Ownership - Private
Year Established - 1958
Initial Spacing - 1.8 m x 2.1 m
Site Preparation - Farm Plow
Area - 0.25 ha
Stump Age - 34
Breast Height Age - 27
Year of Measurement - 1991

#19 White Spruce - Landsdowne, Picton County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	3359	2559
Diameter (cm)	12.4	13.7
Basal Area (m^2/ha)	41.5	37.8
Total Height (m)	9.9	10.1
Volume (m^3/ha)	194	148
Volume (cords/acre)	–	26
Mean Annual Increment (m^3/ha/yr)	8.1	6.2

Site Description

Soil Series - Thom
Soil Texture - Sandy Loam
Soil Moisture - Well Drained
Site History - Old Field
Capability - 8.2 m^3/ha/yr
Site Index - 21 m @ 50 yrs (BHA)

Plantation Description

Ownership - Scott Maritimes
Year Established - 1966
Initial Spacing - 1.8 m x 1.8 m
Site Preparation - Farm Plow
Area - 1.0 ha
Stump Age - 24
Breast Height Age - 18
Year of Measurement - 1989

#20 European & Japanese Larch – Abercrombie, Pictou County

Plantation Growth and Yield Statistics	*Total*	*Merchantable*
Frequency (trees/ha)	840	840
Diameter (cm)	19.6	19.6
Basal Area (m^2/ha)	25.1	25.1
Total Height (m)	12.5	12.5
Volume (m^3/ha)	145	132
Volume (cords/acre)		24.0
Mean Annual Increment (m^3/ha/yr)	9.1	8.3

Site Description			*Plantation Description*		
Soil Series	-	Pugwash	Ownership	-	Scott Maritimes
Soil Texture	-	Loam	Year Established	-	1975
Soil Moisture	-	Well Drained	Initial Spacing	-	3.0 m x 3.0 m
Site History	-	Old Field	Site Preparation	-	Nil
Capability	-	13.5 m^3/ha/yr	Area	-	0.2 ha
Site Index	-	>30 m @ 50 yrs (BHA)	Stump Age	-	16
Year of Measurement	-	1990	Breast Height Age	-	14

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